

**For each question, you need to find the answer and show your work. Each problem is worth 3 points: one for the correct answer and two for showing your work. For some problems, you may just need to write out how you know you have the correct answer.**

1. A triangular prism has a height of 20 cm. The triangular base has a base of 13 cm and a height of 7 cm. Find the volume of the triangular prism.
2. Find the volume of a cylinder that has a diameter of 12 cm and a height of 8.4 cm.
3. A rectangular prism has a volume of  $90 \text{ in}^3$ . Give two sets of possible dimensions for the prism.
4. The surface area of a cube is  $96 \text{ cm}^2$ . What is the volume of the cube?

5. A rectangular prism has the following dimensions: length = 12.3 ft, width = 19 ft, and height = 6.7 ft. If only the length is tripled, by how many times is the volume increased? Show work or explain how you know.

6. If the length of an edge of a cube is multiplied by a factor of 4, what would be the effect on its volume? Show work or explain how you know.

7. The diameter of a tennis ball is 68 mm. Find the volume of the tennis ball to the nearest tenth.

8. The lid of a saucepan has the shape of a hemisphere (half of a sphere). The diameter of the lid is 12 inches. If the lid is placed upside-down, how much water could it hold? Round to the nearest cubic inch.

**Open-Ended Question: You may answer the following question on this sheet of paper or a separate piece of paper. Make sure as you answer the open-ended question that you show your work AND explain how you know you are doing the correct work. YOU MUST EXPLAIN WHAT YOU ARE DOING!!!**

A cylinder has a base with a radius of 150 mm and a height of 275 mm.

- A. Find the volume of the cylinder.
- B. If the length of the radius is doubled but the height does not change, what is the effect on the volume.
- C. What change could be made so that the volume of the cylinder is exactly doubled?